

## (Gulf of St. Lawrence Scallop Explorations—1961)

by

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In July and August 1961 the Fisheries Research Board of Canada, supported by the Industrial Development Service of the Department of Fisheries, conducted another survey for commercial stocks of sea scallops (*Placopecten magellanicus*) in the southern Gulf of St. Lawrence.

## SURVEY METHODS

From the results of former surveys and information collected from fishermen and Fisheries Officers, we selected 40 areas for survey. They are shown in Fig. 1. Some had previously supported commercial fishing but others were new grounds. This exploration was done with a medium-size (registered length, 56.7 feet) Caraquet, New Brunswick, dragger, M.V. Gloucester 27 (Captain Abbé Légère). Additional work was also done from a lobster boat and results of this project are reported at the end of this circular.

Captain Légère accompanied the M.V. Ocean Swell on a trip to Georges Bank to familiarize himself with scallop fishing. On his return, he rigged the Gloucester 27 and made trial tows to test the gear and thoroughly train his crew before the survey began.

A single 11-foot offshore drag, knit with 3-inch (inside diameter) rings was used during this work. Trial tows were also made with a Wood Island type drag but it yielded much smaller catches than the offshore drag. It was therefore not used in our assessment work.

## DRAGGING PROCEDURE

All tows were made in a straight line and most were of 20-minute duration (time from hook up to beginning of haul back). The position and depth at the start and finish of each tow were recorded and plotted. When a well stocked area was found, a spot buoy was put out and tows were made around it to establish the boundaries of the bed.

The catch was sorted and the number or volume of scallops caught recorded. The sizes of scallops (shell measurement from hinge to shell margin) were noted and the type of bottom was judged from the appearance of the catch. We also measured the amount of trash (in bushels) and recorded the presence of associated bottom animals such as starfish, sea urchins, etc.

## COMMERCIAL BEDS

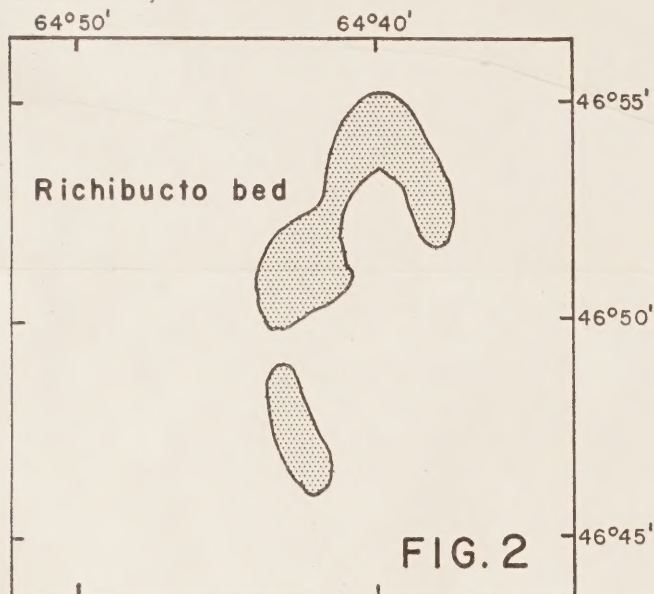
Many factors determine whether a bed is worth fishing but most important are the abundance of commercial-size scallops (those measuring  $3\frac{1}{2}$  inches or more from hinge to shell margin) and the wharf price. In assessing the commercial potential of any of the areas surveyed, it must be remembered that this survey was designed to locate scallop beds for the local small-boat fishery. We estimated that small boats could operate profitably on beds where the Gloucester 27 caught an average of 3 bushels or more





of commercial-size scallops in 20-minute tows. Using this standard, only 5 of the 40 areas visited could support commercial operations.

In the description of these 5 areas which follows, Fig. 2, 3 and 4 have been traced directly from British Admiralty Chart 2034, "Northumberland Strait"; Fig. 5 from British Admiralty Chart 1715 "Chaleur Bay".

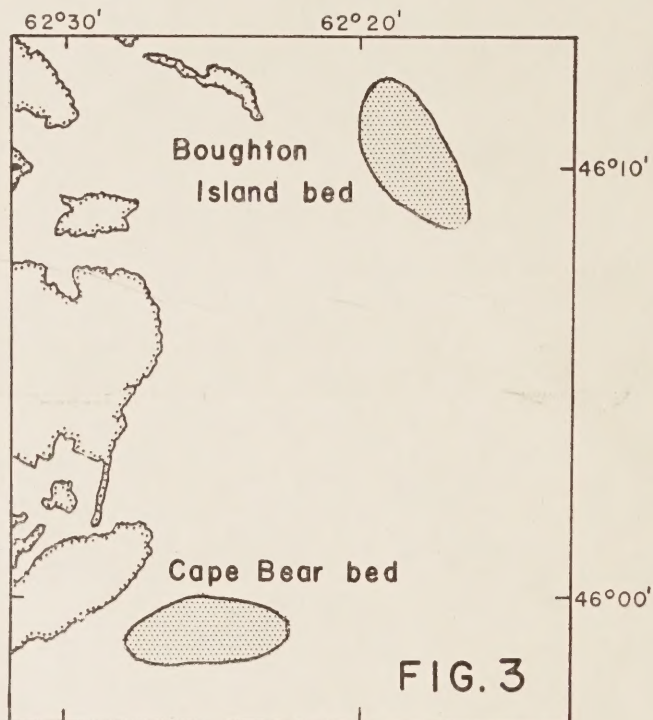


#### Richibucto Bed

Since we last explored this bed in 1950, the centre of concentration has shifted some 3 to 4 miles to the northwest and is now situated at latitude  $46^{\circ} 54'$ , longitude  $64^{\circ} 40'$ . The bed appears to be kidney-shaped and one part runs due north and south (magnetic) for  $3\frac{3}{4}$  miles and is  $1\frac{1}{2}$  miles in width (Fig. 2). It lies in 11 to 12 fathoms of water and the bottom is sandy. The other portion runs southwest (magnetic) from the above position for about 5 miles and is  $1\frac{1}{2}$  miles wide. It is in 11 fathoms of water and is also on sandy bottom.

This was the best-stocked bed that we found during the survey. Catches ranged up to 15 bushels of scallops per haul with the 11-foot drag. The scallops were slightly on the small side, measuring from  $2\frac{1}{2}$  to 5 inches but half of them were commercial size. Many starfish were preying on these scallops but in spite of this we believe there should be good fishing on this bed in 1962.

There is a suggestion of a small bed south of the main bed, centred at about latitude  $46^{\circ} 48'$ , longitude  $64^{\circ} 43'$ . This was not fully explored.



#### Boughton Island Bed

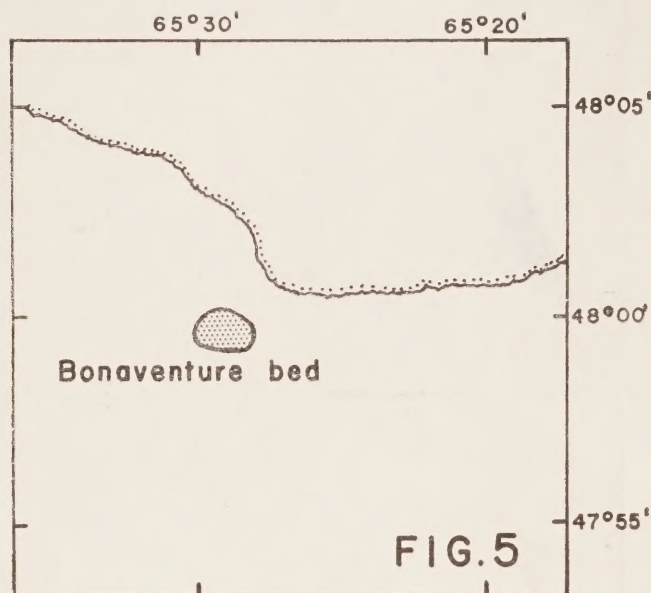
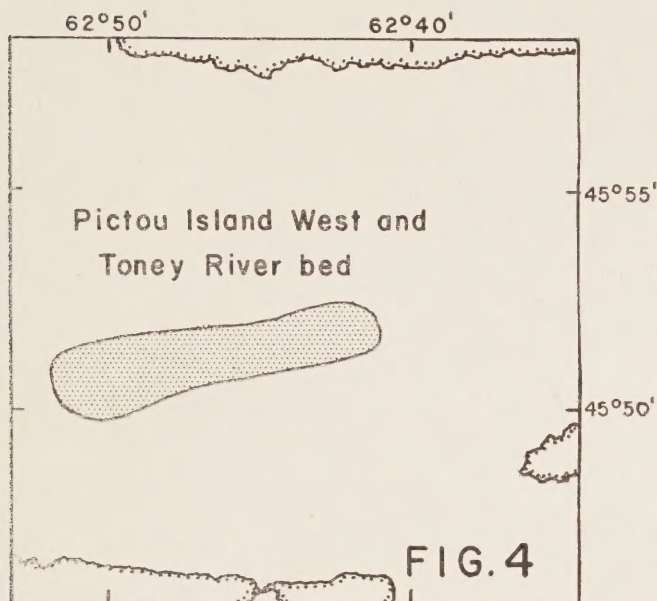
The centre of this bed is at latitude  $46^{\circ} 10'$ , longitude  $62^{\circ} 18'$  and it runs north and south (magnetic) for 4 miles and is  $1\frac{1}{2}$  miles wide (Fig. 3). It is in 11 fathoms of water. The bottom is mostly mud and sand with some small stone.

This was the second-best area that we explored. The biggest catch was 13 bushels and was taken on stoney ground. The size of scallops varied from  $2\frac{1}{2}$  to 5 inches but about half of them were commercial size.

#### Cape Bear Bed

This bed is centred at latitude  $45^{\circ} 59'$ , longitude  $62^{\circ} 25'$ . It runs east and west (magnetic) for 4 miles and is  $1\frac{1}{2}$  miles wide (Fig. 3). The depth varies from 14 to 19 fathoms and the bottom is mostly sandy and stoney.

The best catch was  $6\frac{1}{2}$  bushels with the 11-foot drag. The scallops ranged in size from 3 to 5 inches but three quarters of them were commercial size.



#### Pictou Island West and Toney River Bed

These two beds were separate in the 1950's but the Toney River bed was slightly more seaward in 1961, so that now the two beds overlap to form one large bed  $1\frac{1}{2}$  miles wide and running east and west (magnetic),  $7\frac{1}{2}$  miles long (Fig. 4). The depth varies from 14 to 17 fathoms and the bottom is sandy, stoney and muddy.

The bed is best stocked at its eastern end at latitude  $45^{\circ} 52'$  and longitude  $62^{\circ} 43'$  which corresponds in position with the old Pictou Island West bed. This portion of the bed is about 3 miles long and  $1\frac{1}{2}$  miles in width. Here catches as high as  $8\frac{1}{2}$  bushels were made with the 11-foot drag. The scallops varied in size from 3 to  $4\frac{3}{4}$  inches and 94% of them were commercial size.

On the western (Toney River) end of the bed the scallops were in small pockets with a very spotty distribution. Catches were light but some were up to 5 bushels per tow. The scallops were slightly smaller,  $2\frac{1}{2}$  to  $4\frac{1}{2}$  inches but two thirds of them were commercial size.

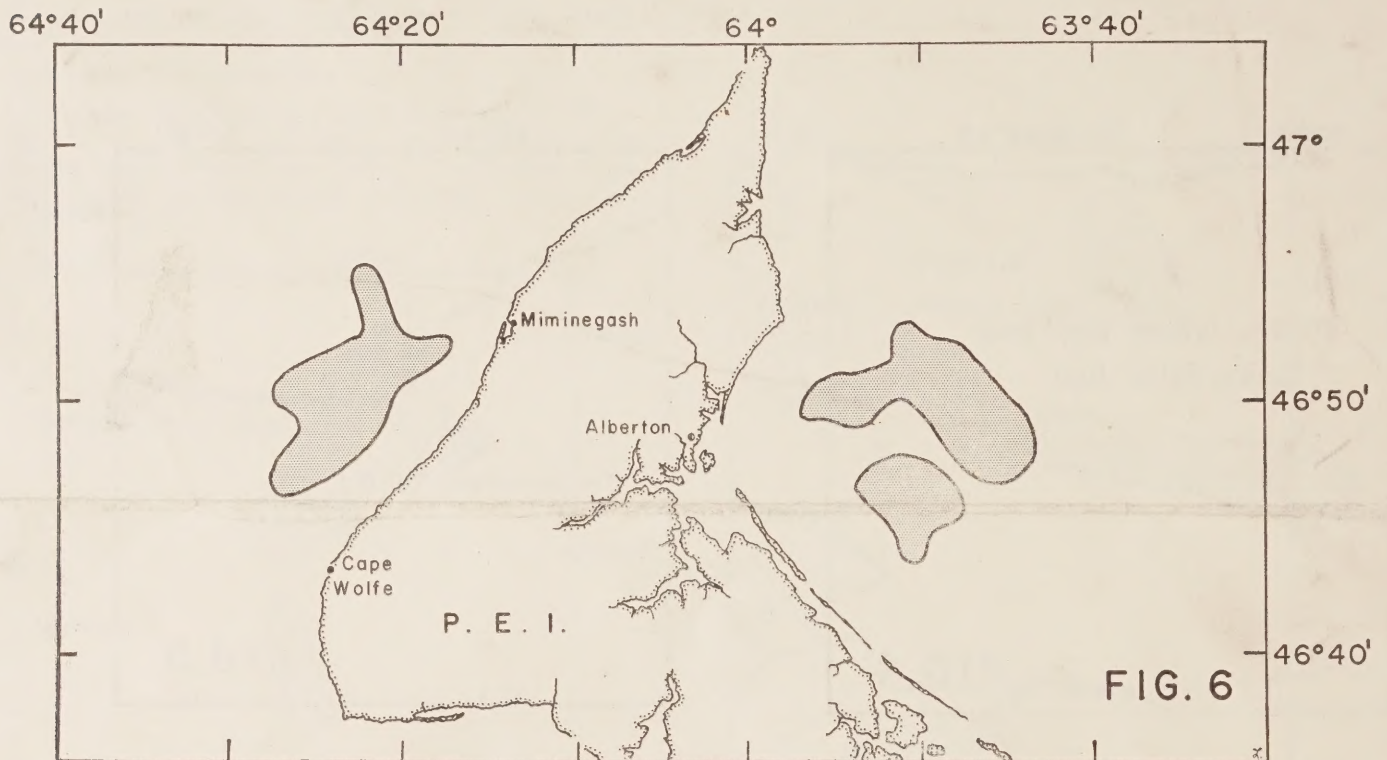
#### Bonaventure Bed

The centre of this area is at latitude  $48^{\circ} 00'$ , longitude  $65^{\circ} 29'$  and it runs due east and west (true) and is  $\frac{3}{4}$  mile in width (Fig. 5). It is in 4 to 9 fathoms of water and is surrounded by sea cucumbers. The bottom is stoney and there was a great deal of trash, starfish, sea urchins, loose stone, etc., mixed with the catches.

Catches of sea scallops ranged up to  $3\frac{1}{2}$  bushels per tow. They were all commercial size,  $3\frac{1}{2}$  to  $5\frac{1}{2}$  inches and 95% of them were more than 4 inches.

This area is not as promising as those described above. It is mentioned here because it is the only reasonably well stocked ground we found in the Bay of Chaleur. It has one feature that we observed nowhere else. Mixed with the sea scallops there were up to 2 bushels of Iceland scallops (*Chlamys islandicus*) that were unusually large for this species. Many measured 4 inches and seemed well worth shucking. Everyone aboard the *Gloucester 27* sampled them and found them excellent eating. If they could be used along with the sea scallops, fishing the Bonaventure bed might be worth while because catches of the two species combined ranged as high as  $5\frac{1}{2}$  bushels per haul.





#### SMALL-BOAT SURVEY

In September, the Department of Fisheries requested more intensive explorations off the northeast and northwest coasts of Prince Edward Island (Alberton to Cape Kildare and Miminegash to Cape Wolfe) (Fig. 6). The *Gloucester 27* had already made a general survey of these areas so it was decided to concentrate on grounds close to shore where the fewest hauls had been made. For this work we chartered the lobster boat, *Alberton 2B-1013* (owner Lemont Hutt), which was temporarily rigged for scallop dragging.

Three types of drag were used in this survey, all of which could be handled easily from a small boat: (1) Single, toothed and toothless Digby drags, (2) Alberton type drags, (3) Baird drag (a toothed drag used off the British coast, width 5 feet).

Here again we made 20-minute tows and measured the catch of scallops. We decided that no area would be considered worth while unless we caught at least  $\frac{1}{2}$  bushel of commercial-size scallops per tow with each Digby or Alberton drag, or at least 2 bushels with the Baird drag.

We caught scallops in almost every tow but no areas were rated worth while according to the above standard. The work with this small boat confirmed the results obtained by the *Gloucester 27* but added nothing new.

#### CONCLUSIONS

Results indicate that 5 beds in the southern Gulf of St. Lawrence are sufficiently well stocked with commercial-size scallops to make small-boat scallop fishing worth while in 1962. None are large enough or well enough stocked to interest offshore boats. On 4 of the 5 beds described there were also large numbers of small scallops, indicating that profitable fishing might be continued into 1963.

We wish to thank Captain Légère and his crew for their hearty co-operation and their long hours of patient and careful work.

We hope the results of our survey will be useful to those who decide to try scallop fishing in the southern Gulf of St. Lawrence. Further details on these explorations may be obtained by writing to the Director, Fisheries Research Board of Canada, Biological Station, St. Andrews, N.B.